LG
Life's Good

PCS150R Pro:Centric® Server

Installation & Setup Guide
Warranty

© Copyright 2013 LG Electronics U.S.A., Inc.

P/N: 206-4157 (Rev B)

For Customer Support/Service, please call: **1-888-865-3026**

The latest product information and documentation is available online at:
www.LGsolutions.com

WARNING
RISK OF ELECTRIC SHOCK
DO NOT OPEN

WARNING:

TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING:

TO PREVENT FIRE OR SHOCK HAZARDS, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.

L’appareil ne doit pas être exposé à des égouttements d’eau ou des éclaboussures et de plus qu’aucun objet rempli de liquide tel que des vases ne doit être placé sur l’appareil.

REGULATORY INFORMATION:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user should be required to correct the interference at his own expense.

CAUTION:

Do not attempt to modify this product in any way without written authorization from LG Electronics U.S.A., Inc. Unauthorized modification could void the user’s authority to operate this product.

COMPLIANCE:

The responsible party for this product’s compliance is: LG Electronics U.S.A., Inc.
2000 Millbrook Drive, Lincolnshire, IL 60069, USA • Phone: 1-847-941-8000

Marketed and Distributed in the United States by LG Electronics U.S.A., Inc.
2000 Millbrook Drive, Lincolnshire, IL 60069

© Copyright 2013 LG Electronics U.S.A., Inc.

IMPORTANT SAFETY INSTRUCTIONS

1. **Read these instructions.**
2. **Keep these instructions.**
3. **Heed all warnings.**
4. **Follow all instructions.**
5. **Do not use this apparatus near water.**
6. **Clean only with dry cloth.**
7. **Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.**
8. **Do not install near any heat sources, such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.**
9. **Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.**
10. **Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where it exits from the apparatus.**
11. **Only use attachments/accessories specified by the manufacturer.**
12. **Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination in order to avoid injury from tip-over.**
13. **Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.**
14. **Power Sources**
    This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your INSTALLATION, consult your product dealer or local power company.
15. **Overloading**
    Do not overload wall power outlets and extension cords as this can result in a risk of fire or electric shock.
16. **Disconnect Device**
    The AC mains plug is used as the disconnect device. The disconnect device must remain readily operable.
17. **Object and Liquid Entry**
    Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product. Do not use liquid cleaners or aerosol cleaners.
18. **Outdoor Use**
    Warning: To prevent fire or shock hazards, do not expose this product to rain or moisture.
19. **Wet Location**
    Do not use this product near water or moisture or in an area, such as a basement, that might become flooded. The apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.
20. **Test Equipment**
    In some cases, LG has supplied or recommended the use of test equipment and devices for the setup and testing of the equipment. The operation and maintenance of test equipment is described in their associated instruction manuals. Please refer to these manuals for explicit instructions regarding the safe use and handling of the equipment.

(Continued on next page)

IMPORTANT SAFETY INSTRUCTIONS

(Continued from previous page)

21. Damage Requiring Service

Unplug this product from the wall power outlet and refer servicing to qualified service personnel under the following conditions:

a. If the power-supply cord or plug is damaged.

b. If liquid has been spilled, or objects have fallen into the product.

c. If the product has been exposed to rain or water.

d. If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions, as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.

e. If the product has been dropped or the cabinet has been damaged.

f. If the product exhibits a distinct change in performance.

Caution: Refer all servicing to qualified service personnel.

22. Servicing

Caution: These servicing instructions are for use by qualified service personnel only. To reduce the risk of electrical shock, do not perform any servicing other than that described in the operating instructions unless you are qualified to do so.

23. Replacement Parts

When replacement parts are required, be sure the service technician uses replacement parts specified by the manufacturer or that have the same characteristics as the original parts. Unauthorized substitutions may result in fire, electric shock, or other hazards.

24. Safety Check

Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

PCS150R Rack Installation (also see page 10)

To install the PCS150R in a rack:

- Carefully slide the PCS150R into a standard 19-inch equipment rack.
- When mounting in the rack, make sure to use the appropriate hardware. ALL FOUR MOUNTING SCREWS MUST BE USED.
- This equipment is not designed to support other devices. Do NOT stack other equipment on the top of the PCS150R.
- Rear cabling must be dressed and supported so that the weight of the cabling is not a strain on the PCS150R connectors.
- MOUNTING OF THE EQUIPMENT IN THE RACK SHOULD BE SUCH THAT A HAZARDOUS CONDITION IS NOT ACHIEVED DUE TO UNEVEN MECHANICAL LOADING.

Rack-mount Considerations

A. Elevated Operating Ambient

If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer (see Specifications information in this document).

(Continued on next page)

IMPORTANT SAFETY INSTRUCTIONS

(Continued from previous page)

B. Reduced Air Flow
Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised. To ventilate the system normally and avoid overheating, leave at least 1 inch (2.5 cm) on each side (including top and bottom) of the PCS150R. Do NOT stack other equipment on the top of the PCS150R. Also, ensure the unit's AC power adapter is never stacked or bundled with other AC power adapters. Each adapter should have adequate ventilation and should be isolated from other heat sources.

C. Circuit Overloading
Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring.

D. Reliable Earthing
Maintain reliable earthing of rack-mounted equipment. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

E. Mains Outlet Earthing
The apparatus with Class I construction must be connected to a mains socket outlet with a protective earthing connection.

PCS150R Installation on a Flat Surface

To install the PCS150R on a level surface (table top, shelf, etc.):

- Install the equipment in an environment compatible with the maximum operating ambient temperature (Tma) specified by the manufacturer (see Specifications information in this document).
- Place spacers or rubber feet (not provided) on the bottom of the PCS150R.
- Carefully place the PCS150R on the level surface.
- To ventilate the system normally and avoid overheating, leave at least 1 inch (2.5 cm) on each side (including top and bottom) of the PCS150R. Do NOT stack other equipment on the top of the PCS150R.

Table of Contents

Safety Warnings 2
Important Safety Instructions. . . . . 3 – 5
Table of Contents 6
PCS150R Product Description 7
Setup Information 8
Rear and Front Panel Overviews 9
Rack Installation 10
- Typical Rack Installation 10
- Rack-mount Considerations. 10

System Setup . . . . . 11 – 17
- Typical Setup Flow Chart for PCS150R with ASI Output 11
- Typical Setup Flow Chart for PCS150R with RF Output. 12
- Typical Setup Flow Chart for PCS150R with IP Output 13
- VPN Network Connections Overview 13
- Typical System Installation. 14

Network and Communication Setup 18
PCS150R Configuration Options. . . . . 19 – 29
- Log In to the PCS150R and Access the Main Menu 19
- View System Information 20
- Configure Video Parameters 20
- Configure Network Settings 22
- Set the Time Zone 24
- Set the Date and Time 26
- Change the Login Password 27
- Update the PCS150R Operating System via Ethernet 28
- Update the PCS150R Operating System via Serial Link. 28
- Update the VPN Setup. 29
- Reset the PCS150R. 29
- Exit the Current Session 29

Troubleshooting. . . . . 30 – 31
- PCS150R Setup. 30
- PCS150R Communication 31

Specifications 32
Document Revision History / Notes 33
Open Source Software Notice. 34
Warranty . . . . . Back Cover

PCS150R Product Description

The LG PCS150R Pro:Centric® server is a stand-alone, remotely-controlled processor and controller for the Pro:Centric system. The server can be used to capture data from an Internet source, assemble the data as display pages, and output the pages in DTV format over an ASI or RF interface or an IP stream.

Features

- Three output options: ASI, RF, or IP
- Remote management capability over Ethernet
- Small, lightweight chassis
- 19-inch rack-mountable
- 1U height profile to minimize rack space usage

An Internet browser-based Admin Client graphical user interface (GUI), provided for system integrator (SI) partners and lodging/institution administrators, facilitates support and maintenance of the Pro:Centric system. The Admin Client enables users to remotely manage system backups, output configuration, software updates, portal/information section content, TV configuration settings, etc.

Note: Design and specifications subject to change without prior notice.

Setup Information

Check the following items before you begin the PCS150R installation and setup procedures.

ASI Output (Optional)

__ If the system is using ASI ouput, install the modulator and upconverter that will receive the ASI output signal from the PCS150R. Refer to the manufacturer's documentation.

PCS150R

__ Unpack the PCS150R Pro:Centric server unit and all accessories.

PCS150R Accessories:	• AC Power Cord and Adapter

__ Select the location for mounting the PCS150R. Ensure that adequate ventilation is available.

__ Obtain the necessary attachment hardware to mount the PCS150R chassis in its targeted location.

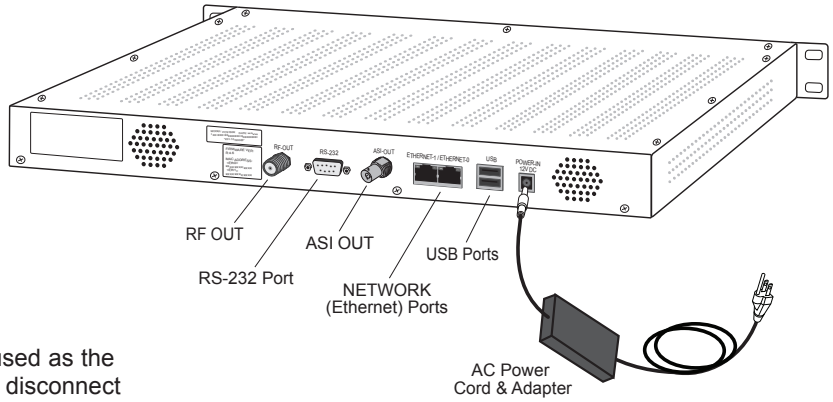
__ Plan and install the necessary cabling and network (Ethernet) and AC power access for the PCS150R.

You also will need the following to connect a PC directly to the PCS150R for system setup verification purposes:

- DB9 Male-to-DB9 Female RS-232 straight-through serial cable (Example: Cables Unlimited PCM-2100-06 serial cable).
- (Optional) USB 2.0-to-serial DB9 adapter (Example: Cables Unlimited USB-2920 adapter). If there is no serial port on the PC, use the adapter to connect the serial cable to the PC.

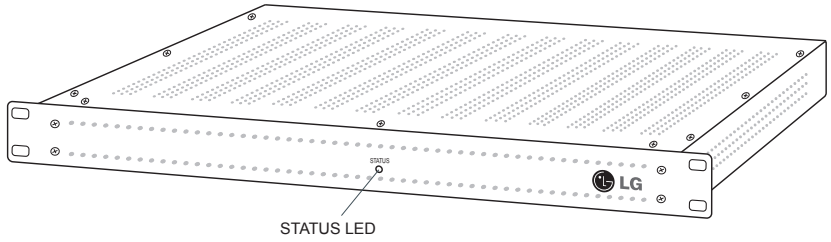
Rear and Front Panel Overviews

PCS150R Rear View



Disconnect Device
The AC mains plug is used as the disconnect device. The disconnect device must remain readily operable.

PCS150R Front View

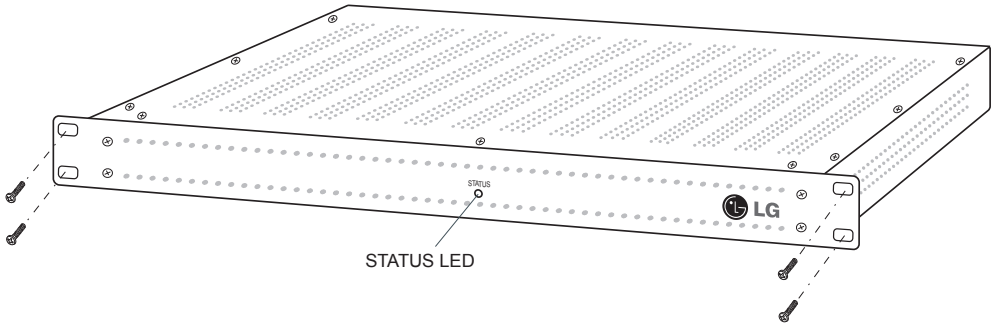


Ventilation Holes
Air flow must not be obstructed. To ventilate the system normally and avoid overheating, leave at least 1 inch (2.5 cm) on each side (including top and bottom) of the PCS150R. Do NOT stack other equipment on the top of the PCS150R.

Rack Installation

Typical Rack Installation

1. Carefully slide the chassis into a standard 19-inch equipment rack.
2. Use all four mounting screws to secure the chassis to the rack.



Rack-mount Considerations

A. Elevated Operating Ambient
If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer (see Specifications information in this document).

B. Reduced Air Flow
Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised. To ventilate the system normally and avoid overheating, leave at least 1 inch (2.5 cm) on each side (including top and bottom) of the PCS150R. Do NOT stack other equipment on the top of the PCS150R unit. Also, ensure that the unit's AC power adapter is never stacked or bundled with other AC power adapters. Each adapter should have adequate ventilation and should be isolated from other heat sources.

C. Circuit Overloading
Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring.

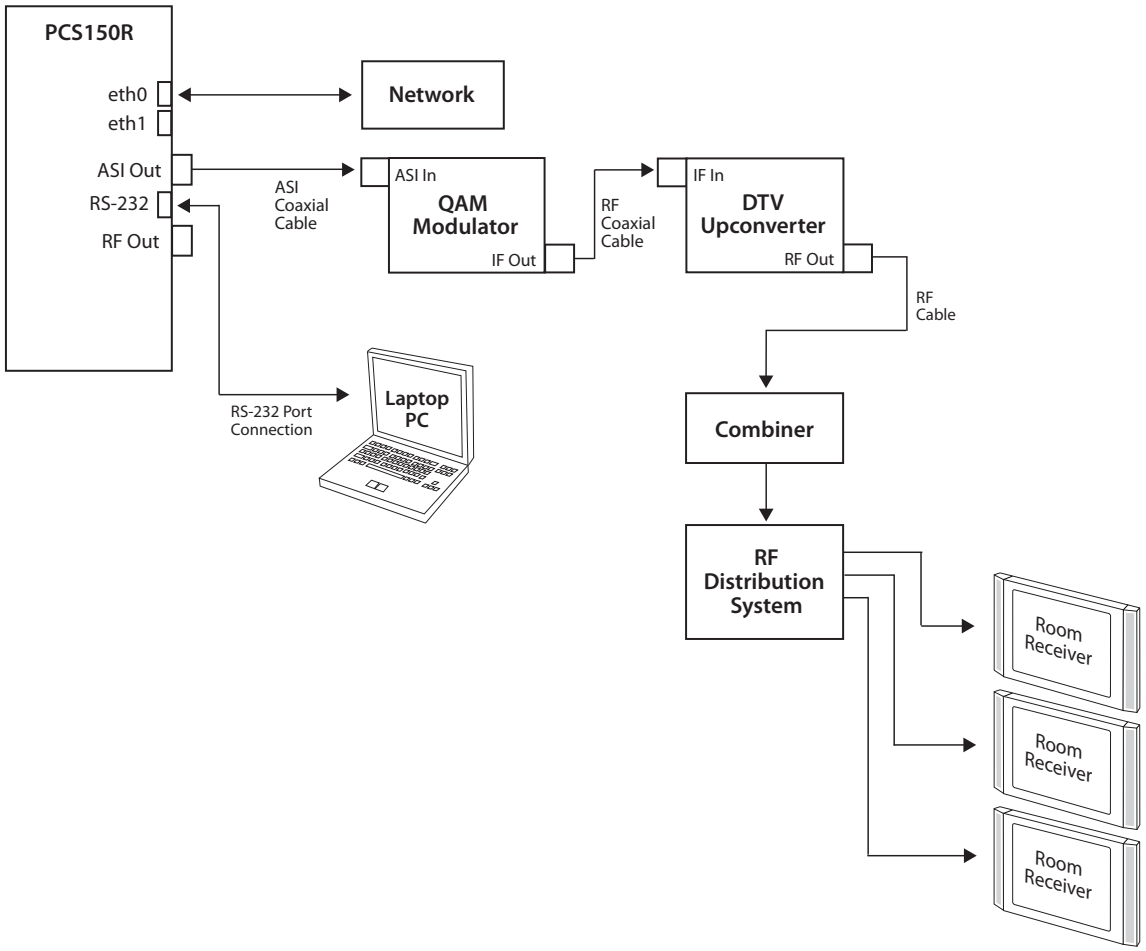
D. Reliable Earthing
Maintain reliable earthing of rack-mounted equipment. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

E. Mains Outlet Earthing
The apparatus with Class I construction must be connected to a mains socket outlet with a protective earthing connection.

Refer to the following diagrams, and complete the system installation as described on pages 14 to 17.

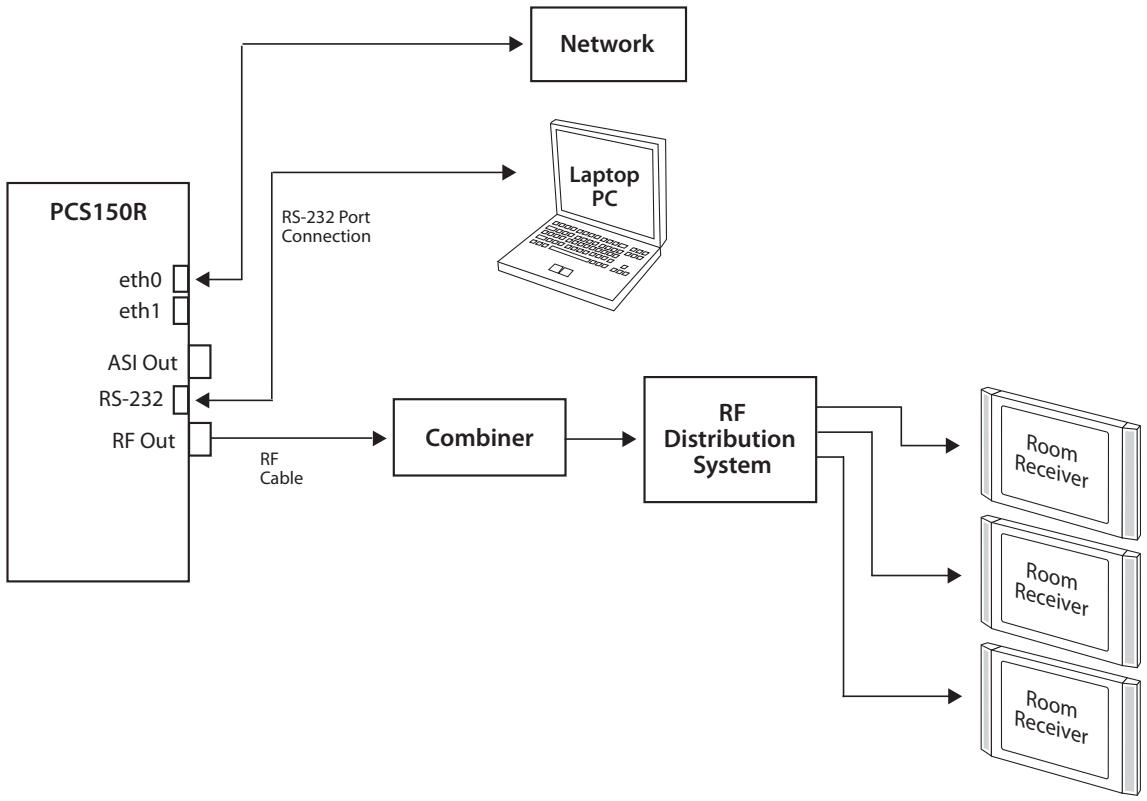
Caution: Do NOT make system connections until instructed to do so during the system installation procedure. In some instances, configuration steps must be performed before physical connections are made.

Typical Setup Flow Chart for PCS150R with ASI Output

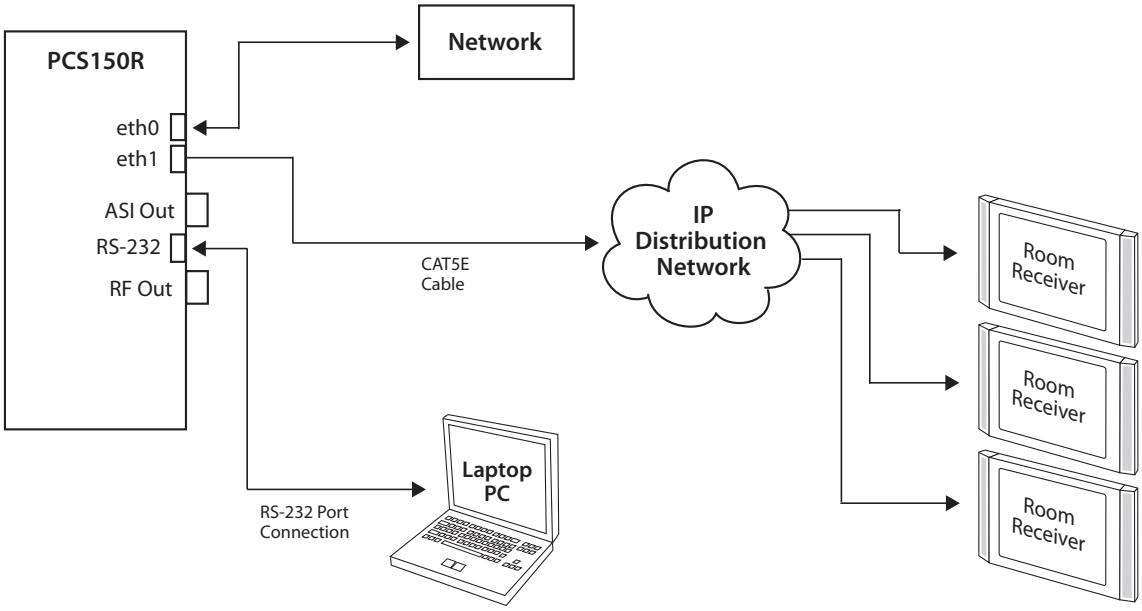


System Setup (Cont.)

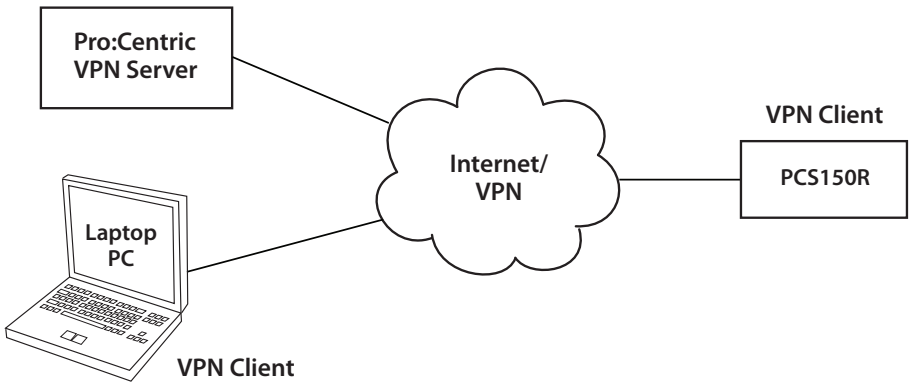
Typical Setup Flow Chart for PCS150R with RF Output



Typical Setup Flow Chart for PCS150R with IP Output



VPN Network Connections Overview



System Setup (Cont.)

Typical System Installation

(see also Typical Setup Flow Charts and VPN Network Connections Overview diagrams)

1. If your system is using ASI output, make the following two connections; otherwise, go to step 2.
   - Connect a 75 ohm BNC-to-BNC coaxial cable between ASI OUT on the PCS150R and ASI IN on the modulator.
   - Connect an RF coaxial cable between IF OUT on the modulator and IF IN on the upconverter.

   ⚠ Note: The BNC cable must be less than 30 feet (9.2 meters) in length.
2. To enable remote management, connect one end of a CAT5 RJ-45 Ethernet cable to the ETHERNET-0 port on the PCS150R rear panel, and connect the other end of the cable to the institution's network.
3. Connect the PCS150R power supply to the POWER connector on the PCS150R rear panel.
4. Use the straight-through serial cable and, if necessary, the USB adapter to connect a PC to the RS-232 port on the PCS150R rear panel. (This step will enable you to verify the network connection once power is applied in step 6.)
5. Using HyperTerminal or an equivalent terminal emulation program on the PC, configure the serial port as follows: Bits per second = 115200; Data bits = 8; Parity = None; Stop bits = 1; Flow Control = None
6. Plug the AC power cord into a powered AC line receptacle. When power is applied, the STATUS LED on the PCS150R front panel will light, and you will see boot-up messages on the PC.

   When the boot-up is complete, a System Information display identifies important information about the PCS150R, including the unit serial number, hardware ID (firmware version), software versions, MAC addresses, and IP addresses, for example:

```
PCS150R Pro:Centric Server v5.2

SN:             001-12150025
Hardware ID:    1.1.0.17
OS version:     Linux 2.6.38-zenith+
OS release:     #204 Mon May 2 17:21:54 CDT 2011
Eth0 MAC:       00:0C:63:3B:00:55
Eth0 IP:        192.168.10.77
Eth1 MAC:       00:0C:63:3B:00:65
Eth1 IP:        n/a
VPN IP:         10.7.0.1
RF config:      Mode 3, QAM-B, RF: 6 MHz, 5.36 MSps, ASI: 38.81 Mbps
RF channel:     75
Local time:     Wed Mar  6 16:08:12 EST 2013
```

(Continued on next page)

(Continued from previous page)

7. Check the Eth0 IP (ETHERNET-0 IP Address) field in the System Information display. By default, the PCS150R uses DHCP; thus, the DHCP server, if configured, assigns an IP address to the PCS150R once the PCS150R successfully connects to the network.
   - If the Eth0 IP field shows an IP address, the PCS150R is up and running on the network. If you wish to configure a static IP address for the ETHERNET-0 port and/or if you need to configure a static IP address for the ETHERNET-1 port (for IP output purposes), continue with step 8. Otherwise, you can go to step 9 at this time.
   - If the network is configured for DHCP, but the Eth0 IP field is blank, refer to "Network Setup" troubleshooting information on page 30.
   - If the network is not configured for DHCP, you will need to configure a static IP address for the PCS150R ETHERNET-0 port as described in step 8.
8. This step describes how to set a static IP address for the ETHERNET-0 and/or ETHERNET-1 port(s).

   Caution: Setting a static IP address for the PCS150R ETHERNET-0 port (for remote management purposes) is optional. However, if you will be using IP output from the PCS150R, you MUST configure the ETHERNET-1 port as described in step (d) below.

   a) This step requires that you log in to the PCS150R. Below the initial System Information display, you should see a login prompt. (If the prompt is not automatically displayed, press **Enter** to refresh the screen.)

      At the `login as:` prompt, type **admin** and press **Enter**. Then, type the admin user password (provided by LG) at the `password:` prompt.

   b) At the `Command >` prompt, type **setip** and press **Enter**. The system will display the current network configuration, followed by the Network Configuration Menu.

      Use the Network Configuration Menu commands and follow the system prompts to configure the port(s). See "Configure Network Settings" on pages 22 to 24 for further information.

   c) Use the "eth0" and "dns" commands to configure the ETHERNET-0 port, as necessary.

   d) Use the "eth1" command to configure the ETHERNET-1 port, if required, for PCS150R IP output. Note the following additional requirements for the eth1 port configuration:
      - The ETHERNET-1 port must be configured with a static IP address that is on the same network as the TV(s).
      - Depending on the PCS150R software version, you may be prompted to enter a gateway IP address. Do NOT specify a gateway IP address for this port. If the prompt for the gateway IP address shows a default value in square brackets, press the **space bar** once and then press **Enter** to ensure the field remains empty.

(Continued on next page)

System Setup (Cont.)

(Continued from previous page)

e) When you are finished with network configuration, type **exit** and press **Enter** at the Network Configuration Menu `>` prompt. The system will display an overview of the new network configuration and then prompt for confirmation to save the changes:

`Do you want to save the new configuration? (Y/N):`

Type **y** or **n** and press **Enter**, as appropriate.

Note: Review the New Network Configuration overview carefully before you confirm the configuration settings. Ensure each of the addresses was entered correctly.

f) If you changed the configuration of the port(s), you will be prompted to reset the system. At the `Command >` prompt, type **reset** and press **Enter**. The reset process may take up to two minutes, after which the PCS150R resumes normal operation.

9. (Optional) Set the date and time on the PCS150R.

By default, the PCS150R is synchronized with an NTP client and configured for the US Eastern time zone. If the PCS150R is connected to the Internet, the NTP client will periodically update the time setting on the PCS150R. You can set the time zone as required. If the PCS150R is not connected to the Internet, you also have the option to disable NTP client synchronization and specify date and time data manually.

Note: The Time setup ("time") command indicated below is available only with PCS150R version 5.2 or later software. (Check the System Information display header, as necessary, to verify the PCS150R software version.)

a) This step requires that you log in to the PCS150R.

- If you are already logged in, continue with step (b).
- Otherwise, below the System Information display (after boot-up), you should see a login prompt. (If the prompt is not automatically displayed, press **Enter** to refresh the screen.)

  At the `login as:` prompt, type **admin** and press **Enter**. Then, type the admin user password (provided by LG) at the `password:` prompt.

b) Use the PCS150R "tz" and/or "time" commands, as necessary, to set the date and time on the PCS150R.

- Use the "tz" command and follow the system prompts to change the time zone.
- Use the "time" command and follow the system prompts to change the NTP configuration or manually configure the date and time parameters on the PCS150R.

Refer to "Set the Time Zone" and "Set the Date and Time," respectively, on pages 24 to 27 for further information on these commands.

(Continued on next page)

(Continued from previous page)

c) If you changed the time zone and/or the NTP configuration, you will be prompted to reset the system. When you have completed your date and time configuration activities, at the `Command >` prompt, type **reset** and press **Enter**. The reset process may take up to two minutes, after which the PCS150R resumes normal operation.

10. Make the appropriate connection to the RF distribution system or IP distribution network depending on the PCS150R output option to be used.
    - ASI output: Connect the RF output on the upconverter to the RF distribution center combiner, and balance the RF signal so that the Pro:Centric signal level at the TV(s) is between 0 to +7 dBmV.
    - RF output: Connect RF OUT on the PCS150R to the RF distribution center combiner, and balance the RF signal so that the Pro:Centric signal level at the TV(s) is between 0 to +7 dBmV.
    - IP output: Connect a CAT5E or better Ethernet cable between the ETHERNET-1 port on the PCS150R rear panel and the institution's IP distribution network.

    Caution (ASI/RF Output only): For proper system performance, the Pro:Centric signal level at the TV input (ANTENNA IN) must be between 0 to +7 dBmV. Note that additional equipment may be required to adjust the signal level.

11. Configure the ASI/RF or IP output parameters in the Pro:Centric server Admin Client "RF/IP Configuration" screen. Refer to the ***Pro:Centric Server Admin Client User Guide*** for further information.

    Note: By default, the server output is enabled for QAM-B modulation (RF output).

12. Check one or more room receivers to make sure all content is properly mapped and available.

Network and Communication Setup

This section describes PCS150R communication options for configuration purposes.

Note: Before you proceed with any additional server configuration, the system should be installed and operating as described in the system setup procedure on pages 14 to 17.

Also note that configuration updates periodically require that you reset the PCS150R. Make sure to reset the unit when directed to do so.

There are two options for communicating with the PCS150R:

- When the PCS150R is connected to an IP network, you can use an SSH client to communicate with the PCS150R via a command line interface.
- To establish a direct connection to the PCS150R, connect a PC to the RS-232 port on the PSC150R rear panel using a DB9 Male-to-DB9 Female RS-232 straight-through serial cable (Example: Cables Unlimited PCM-2100-06 serial cable) and, if necessary, a USB 2.0-to-serial DB9 adapter (Example: Cables Unlimited USB-2920 adapter).

  Using HyperTerminal or an equivalent terminal emulation program on the PC, configure the serial port as follows:

  − Bits per second/baud = 115200
  − Data bits = 8
  − Parity = None
  − Stop bits = 1
  − Flow Control = None

You will need to know the “admin” user password in order to log in to the command line interface. If necessary, consult the system administrator to obtain the “admin” user password.

Note: The default network setting for the PCS150R is DHCP, in which case the server assigns an IP address to the PCS150R. If necessary, consult the network administrator to obtain the IP address that has been assigned to the PCS150R.

PCS150R Configuration Options (Cont.)

Log In to the PCS150R and Access the Main Menu

Note: The PCS150R must be connected to an IP network for SSH client access. For direct access to the PCS150R RS-232 port, use a DB9 Male-to-DB9 Female RS-232 straight-through serial cable. See also “Network and Communication Setup” on page 18 for further information.

If necessary, consult the network administrator to obtain the “admin” user password before proceeding.

1. Establish communication with the PCS150R using an SSH client or via a direct connection to the PCS150R RS-232 port.

   Once communication is established, you should see a login prompt. (If the login prompt is not automatically displayed, press **Enter** to refresh the screen.)

2. At the `login as:` prompt, type **admin** and press **Enter**.
3. At the `Password:` prompt, type the admin password and press **Enter**.
4. At the `Command >` prompt, either:
   - Press **Enter** to display the PCS150R Main Menu (see example below).
   - Type the desired command and press **Enter**.

The following sections describe each of the configuration commands.

Note: You can always press **Enter** at the `Command >` prompt to display the PCS150R Main Menu.

Example: PCS150R Main Menu

```
---------
Main Menu
---------
  info           System information
  video          Configure video parameters
  setip          Setup TCP/IP
  tz             Timezone setup
  time           Time setup*
  pwd            Change password
  update         Update
  updser         Update via serial link
  vpn            VPN setup
  reset          Reset board
  exit           End the session

Command >
```

* Available only with PCS150R version 5.2 or later software.

PCS150R Configuration Options (Cont.)

View System Information

1. Log in to the PCS150R as described on the previous page.
2. At the `Command >` prompt, type **info** and press **Enter**.

The System Information display identifies important information about the PCS150R, including the unit serial number, hardware ID (firmware version), software versions, MAC addresses, and IP addresses, for example:

```
PCS150R Pro:Centric Server v5.2

SN:             201-12150025
Hardware ID:    1.1.0.17
OS version:     Linux 2.6.38-zenith+
OS release:     #204 Mon May 2 17:21:54 CDT 2011
Eth0 MAC:       00:0C:63:3B:00:55
Eth0 IP:        192.168.10.77
Eth1 MAC:       00:0C:63:3B:00:65
Eth1 IP:        n/a
VPN IP:         10.7.0.1
RF config:      Mode 3, QAM-B, RF: 6 MHz, 5.36 MSps, ASI: 38.81 Mbps
RF channel:     75
Local time:     Wed Mar  6 15:10:40 CST 2013
```

It is recommended that you record this information for future reference. If you find it necessary to call customer service or engineering support, please have this information available.

Note: If RF output is configured for DVB-C modulation, the display will identify the RF frequency (in KHz) in place of the RF channel.

Configure Video Parameters

This option enables you to view current settings and/or configure new settings, as required.

1. Log in to the PCS150R as described on the previous page.
2. At the `Command >` prompt, type **video** and press **Enter**.

   The system displays the current video parameters and prompts for a selection, for example:

```
Current video configuration:
  1) Program number        47 (default)
  2) PMT PID               4096 (default)
  3) Video PID             4097 (default)
  4) Elementary PID1       4098 (default)
  5) Elementary PID2       4099 (default)
  6) Elementary PID3       4100 (default)
  7) Elementary PID4       4101 (default)
Select parameter to change or press Enter to accept:
```

(Continued on next page)

PCS150R Configuration Options (Cont.)

(Continued from previous page)

3. To return to the `Command >` prompt without making any changes, you can simply press **Enter**. Otherwise, select the appropriate option, depending on the parameter you wish to change:
   - Program Number: Type **1** and press **Enter** to change the video program number.

     At the `Enter new value for Program number [47]:` prompt, type a new program number and press **Enter**. The system will redisplay the video configuration, showing your update.

     Note: The video channel major number is the RF data channel assigned for Pro:Centric operation (Installer Menu item 119 DATA CHANNEL) and the video channel minor (program) number is as configured in this step (default program number = 47). Refer to Commercial Mode Setup documentation for the TV in question for further information.
   - PMT ID: Type **2** and press **Enter** to change the PMT (Program Map Table) PID (packet ID).

     At the `Enter new value for PMT PID [4096]:` prompt, type the new PMT ID and press **Enter**. The system will redisplay the video configuration, showing your update.
   - Video PID: Type **3** and press **Enter** to change the video PID.

     At the `Enter new value for Video PID [4097]:` prompt, type the new video PID and press **Enter**. The system will redisplay the video configuration, showing your update.

     Note: Assign video and elementary PIDS as necessary according to the system's network distribution requirements.
   - Elementary PID: There are four Elementary PIDs. Type **4**, **5**, **6**, or **7**, depending on which Elementary PID you wish to change, and press **Enter**.

     At the `Enter new value for Elementary PID# []:` prompt, type the new Elementary PID and press **Enter**. The system will redisplay the video configuration, showing your update.

     Note: Assign video and elementary PIDS as necessary according to the system's network distribution requirements.
4. At the `Select parameter to change or press Enter to accept:` prompt, select another parameter to change, if desired, and follow the prompts, or press **Enter** to accept the displayed configuration parameters and return to the `Command >` prompt.

PCS150R Configuration Options (Cont.)

Configure Network Settings

This option enables you to configure the network settings of the PCS150R Ethernet ports. ETHERNET-0 (eth0) is used for remote communication purposes, while ETHERNET-1 (eth1) is designated for PCS150R IP output.

1. Log in to the PCS150R as described on page 19.
2. At the `Command >` prompt, type **setip** and press **Enter**.

   The system displays an overview of the current network configuration followed by the Network Configuration Menu, for example:

```
Current Network Configuration

Interface eth0
  Host name:          pcs150r
  Using DHCP:         YES

Interface eth1
  Host name:          pcs150r
  Using DHCP:         YES

DNS servers
  Primary DNS:        68.94.156.1
  Secondary DNS:      68.94.157.1


-------------------------
Network Configuration Menu
-------------------------
  eth0       Configure eth0
  eth1       Configure eth1
  dns        Configure dns
  exit       Exit network configuration

Choose item to modify >
```

3. Either:
   - Continue with step 4 for information on modifying the configuration a PCS150R Ethernet port.
   - Go to step 9 for information on modifying the DNS configuration.
   - To exit the Network Configuration Menu without modifying any settings, type **exit** at the Network Configuration Menu `>` prompt.
4. Type **eth0** or **eth1**, as applicable, and press **Enter** to modify the configuration of the ETHERNET-0 or ETHERNET-1 port, respectively.

(Continued on next page)

PCS150R Configuration Options (Cont.)

(Continued from previous page)

5. At the `Host name [pcs150r]:` prompt, either press **Enter** to accept the default value in square brackets, or type a new host name and then press **Enter**.
6. At the `Using DHCP (Y/N) [Y]:` prompt, type **y** to use DHCP, or type **n** to specify the network IP addresses. Then, press **Enter**. See also note below.

   Note: If ETHERNET-1 is to be used for IP streaming, you MUST configure the port with a static IP address that is on the same network as the TV(s). At the same time, a gateway IP address should NOT be specified for ETHERNET-1 (see step 7).

7. If the port is NOT using DHCP, type the information requested at each of the following prompts. Type each address in the format *xxx.xxx.xxx.xxx*, and press **Enter** after each entry.

   Note: If you are currently configuring ETHERNET-1, depending on the PCS150R software version, you may be prompted to enter a gateway IP address. Do NOT specify a gateway address. If the prompt for the gateway IP address shows a default value in square brackets, press the space bar once and then press Enter to ensure the field remains empty.

   ```
   This host IP address []:
   Network mask []:
   Gateway IP address []:
   ```

8. Once you enter (or bypass) the gateway address, the system will redisplay the Network Configuration Menu.
   - To modify the configuration of the second Ethernet port, repeat steps 4 to 7.
   - To modify the DNS configuration, continue with step 9.
   - If no additional network configuration is required, go to step 10.
9. To change the DNS configuration, type **dns** and press **Enter**.

   At each of the following prompts, type the information requested. Type each address in the format *xxx.xxx.xxx.xxx*, and press **Enter** after each entry.

   ```
   Configuring DNS
   Primary DNS IP address []:
   Secondary DNS IP address []:
   ```

   Once you enter the secondary DNS IP address, the system will redisplay the Network Configuration Menu. You can select another option to modify (see previous steps) or you can exit as described below.
10. When you are finished with network configuration, type **exit** at the Network Configuration Menu `>` prompt. The system will display an overview of the new network configuration and then prompt for confirmation to save the changes, for example:

(Continued on next page)

PCS150R Configuration Options (Cont.)

(Continued from previous page)

```
New Network Configuration

Interface eth0
  Host name:           pcs150r
  Using DHCP:          YES

Interface eth1
  Host name:           pcs150r
  Using DHCP:          NO
  Host IP address:     10.165.60.92
  Network mask:        255.255.255.0
  Gateway IP address:

DNS servers
  Primary DNS:         68.94.156.1
  Secondary DNS:       68.94.157.1

Do you want to save the new configuration? (Y/N):
```

11. Type **y** or **n** and press **Enter**, as appropriate.

    If you opt NOT to save the new configuration, the system will return immediately to the Main Menu `Command >` prompt. Otherwise, the system will confirm the configuration updates and prompt you to reset the PCS150R:

    ```
    New configuration has been saved. Please restart the system.
    ```

12. If you are ready to reset the PCS150R immediately, at the `Command >` prompt, type **reset** and press **Enter** (see “Reset the PCS150R” on page 29 for further information).

    Note: If you intend to modify additional configuration settings during the current session, you may wait until all changes are complete before you reset the PCS150R.

Set the Time Zone

1. Log in to the PCS150R as described on page 19.
2. At the `Command >` prompt, type **tz** and press **Enter**.

   The system displays the current time zone information for the PCS150R and prompts you to specify whether or not you wish to change the time zone.

   ```
   Current time zone is: America/New York
   Change the time zone? [y/n]:
   ```

3. Either:
   - Type **n** and press **Enter** to return to the Main Menu `Command >` prompt without changing the current time zone.
   - Type **y** and press **Enter** to change the time zone. Then, continue with step 4.

(Continued on next page)

(Continued from previous page)

4. The system displays the following prompt for a location, followed by a list of options:

   ```
   Please identify a location so that time zone rules can be set correctly.
   Please select a continent or ocean.
   ```

   At the `#?` prompt, type the number that corresponds to the appropriate option for your location, and then press **Enter**.

5. The system displays the following prompt for a country, followed by a list of options:

   ```
   Please select a country.
   ```

   At the `#?` prompt, type the number that corresponds to the appropriate option for your country, and then press **Enter**.

6. The system displays the following prompt for a region, followed by a list of options:

   ```
   Please select one of the following time zone regions.
   ```

   At the `#?` prompt, type the number that corresponds to the appropriate option for your region, and then press **Enter**.

   After you specify the time zone region, the system displays an overview of your location selections and prompts for confirmation, for example:

   ```
   The following information has been given:

           United States
           Central Time

   Therefore TZ='America/Chicago' will be used.
   Local time is now:      Wed Mar 6 16:23:10 CST 2013.
   Universal Time is now:  Wed Mar 6 22:23:10 UTC 2013.
   Is the above information OK?
   1) Yes
   2) No
   #?
   ```

7. Either:

   - Type **1** and press **Enter** if the information in the display is correct. The system will confirm the setting and then prompt you to reset the PCS150R:

     ```
     Time zone has been set. Please reset the board.
     ```

     Continue with step 8.

   - Type **2** and press **Enter** to return to the initial location prompt and reset the time zone (repeat this procedure from step 4).

8. If you are ready to reset the PCS150R immediately, at the `Command >` prompt, type **reset** and press **Enter** (see “Reset the PCS150R” on page 29 for further information).

   Note: If you intend to modify additional configuration settings during the current session, you may wait until all changes are complete before you reset the PCS150R.

PCS150R Configuration Options (Cont.)

Set the Date and Time

Note: This command is available only with PCS150R version 5.2 or later software.

By default, the PCS150R is synchronized with an NTP client and configured for the US Eastern time zone. If the PCS150R is connected to the Internet, the NTP client will periodically update the time setting on the PCS150R. If the PCS150R is not connected to the Internet, you also have the option to disable NTP client synchronization and specify date and time data manually. See “Set the Time Zone” on page 24 for information on setting the time zone.

1. Log in to the PCS150R as described on page 19.
2. At the `Command >` prompt, type **time** and press **Enter**.
3. At the `Synchronize time automatically via NTP? (Y/N):` prompt, either:
   - Type **y** and press **Enter** if you intend to use an NTP client for time synchronization.
   - Type **n** and press **Enter** to set the time manually.
4. The remaining steps depend on whether or not you opted in the previous step to synchronize time via an NTP client. Refer to the appropriate subsection below.

Synchronize Time via NTP Client

a) At the `Enter a new NTP server IP: [64.90.182.55]:` prompt, either press **Enter** to accept the default value in square brackets, or type the appropriate NTP client IP address and press **Enter**.

b) At the `Enter a new NTP update interval, in hours [12]>` prompt, either press **Enter** to accept the default value in square brackets, or type the appropriate NTP update interval (in hours) and press **Enter**.

The system will display confirmation and then prompt you to reset the PCS150R, for example:

`Time will be synchronized every 12 hours via NTP from server: xxx.xxx.xxx.xxx`

`Please reset the board`

(where *xxx.xxx.xxx.xxx* is the NTP client IP address you provided above)

c) If you are ready to reset the system immediately, at the `Command >` prompt, type **reset** and press **Enter** (see “Reset the PCS150R” on page 29 for further information).

Note: If you intend to modify additional configuration settings during the current session, you may wait until all changes are complete before you reset the system.

Manual Specification of Date and Time

The system will display the current time (for example: `Current time: 2013-03-06 18:49:56)` and then initiate a series of prompts to enable you to set the time.

(Continued on next page)

(Continued from previous page)

a) At each of the following prompts, type the year, month, and day, respectively. Note that all three of these fields require numerical values. Press **Enter** after each entry.

If applicable, you can also press **Enter** at each prompt to accept the default value in square brackets.

```
Enter new year [2013]>
Enter new month [3]>
Enter new day [6]>
```

b) At each of the following prompts, type the hour and minute, respectively. Note that the hour should be entered in 24-hour format. Press **Enter** after each entry.

If applicable, you can also press **Enter** at each prompt to accept the default value in square brackets.

```
Enter new hour (0-23) [18]>
Enter new minute [49]>
```

c) The system will display the new time and then prompt for confirmation, for example:

```
New time: 2013-03-06 18:53:00
Apply? [y/n]
```

Either, type **y** and press **Enter** to apply the new configuration to the system, or type **n** and press **Enter** to return to the `Command >` prompt without changing the time configuration.

If you apply the new configuration, the system will display confirmation, for example:

```
Time is set
```

Change the Login Password

1. Log in to the PCS150R as described on page 19.
2. At the `Command >` prompt, type **pwd** and press **Enter**.

   The system prompts for the current password:

   ```
   Changing password for admin
   Old password:
   ```

3. Type the current password and press **Enter**. The system will then prompt you to type and retype the new password:

   ```
   New password:
   Retype password:
   ```

4. Type and then retype the new password at the prompts. Press **Enter** after each entry.

Once you complete the Password fields successfully, the system displays confirmation:

```
Password for admin changed by admin.
```

PCS150R Configuration Options (Cont.)

Update PCS150R Application or OS Software via Ethernet

Caution: Do NOT initiate simultaneous menu sessions while a software update is in progress. Doing so may interfere with the active process and may corrupt the system configuration and/or cause the PCS150R to cease normal operation.

This option enables you to update the PCS150R application or OS software via the Ethernet. The appropriate update file must be provided by LG; the system will not download an improper file.

Note: See "Update PCS150R Application or OS Software via Serial Link" below for information on updating software via a serial link.

1. Log in to the PCS150R as described on page 19.
2. At the `Command >` prompt, type **update** and press **Enter**.
3. At the `Enter update filename:` prompt, type in the update filename and press **Enter**.

   The system will initiate the download and confirm progress, for example:

   ```
   Downloading file: pcs150r_app_xxxx.upd
   ```
4. Follow the system prompts, as necessary, to continue the download.
5. When the update is successfully completed, you may be prompted to reset the PCS150R. If necessary, reset the server (see "Reset the PCS150R" on the following page).

Update PCS150R Application or OS Software via Serial Link

Caution: Do NOT initiate simultaneous menu sessions while a software update is in progress. Doing so may interfere with the active process and may corrupt the system configuration and/or cause the PCS150R to cease normal operation.

This option enables you to update the PCS150R application or OS software via a serial link to the PCS150R. The appropriate update file must be provided by LG; the system will not transfer an improper file.

Note: See "Update PCS150R Application or OS Software via Ethernet" above for information on updating software via the Ethernet.

1. Log in to the PCS150R as described on page 19.
2. At the `Command >` prompt, type **updser** and press **Enter**.
3. At the `Send file using XMODEM` prompt, transfer the update file using Xmodem protocol. For example, in HyperTerminal, select **Transfer** and then **Send File...**. In the Send File window, enter or select the appropriate filename in the Filename field, and select **Xmodem** in the Protocol field.

   The system will display progress messages as well as the result of the update process (which may take several minutes).
4. When the update is successfully completed, you may be prompted you to reset the PCS150R. If necessary, reset the server (see "Reset the PCS150R" on the following page).

Update the VPN Setup

This option enables you to update the VPN client via a serial link to the PCS150R. The appropriate update file must be provided by LG; the system will not transfer an improper file.

1. Log in to the PCS150R as described on page 19.
2. At the `Command >` prompt, type **vpn** and press **Enter**.
3. At the `Send VPN client file using Xmodem ...` prompt, transfer the new VPN client file using Xmodem protocol. For example, in HyperTerminal, select **Transfer** and then **Send File...**. In the Send File window, enter or select the appropriate filename in the Filename field, and select **Xmodem** in the Protocol field.

   The system will display progress messages as well as the result of the update process (which may take several minutes).
4. When the update is successfully completed, you may be prompted you to reset the PCS150R. If necessary, reset the server (see “Reset the PCS150R” below).

Reset the PCS150R

1. If not already logged in, log in to the PCS150R as described on page 19.
2. At the `Command >` prompt, type **reset** and press **Enter**.

The reset will be initiated immediately. After reset, the PCS150R resumes normal operation.

Exit the Current Session

At the `Command >` prompt, type **exit** and press **Enter** to end the current session.

Troubleshooting

PCS150R Setup

The following sections provide basic troubleshooting information for the PCS150R.

Equipment Setup Review

Make sure all connectors and connections are tight and secure on all entertainment system components.

Network Setup

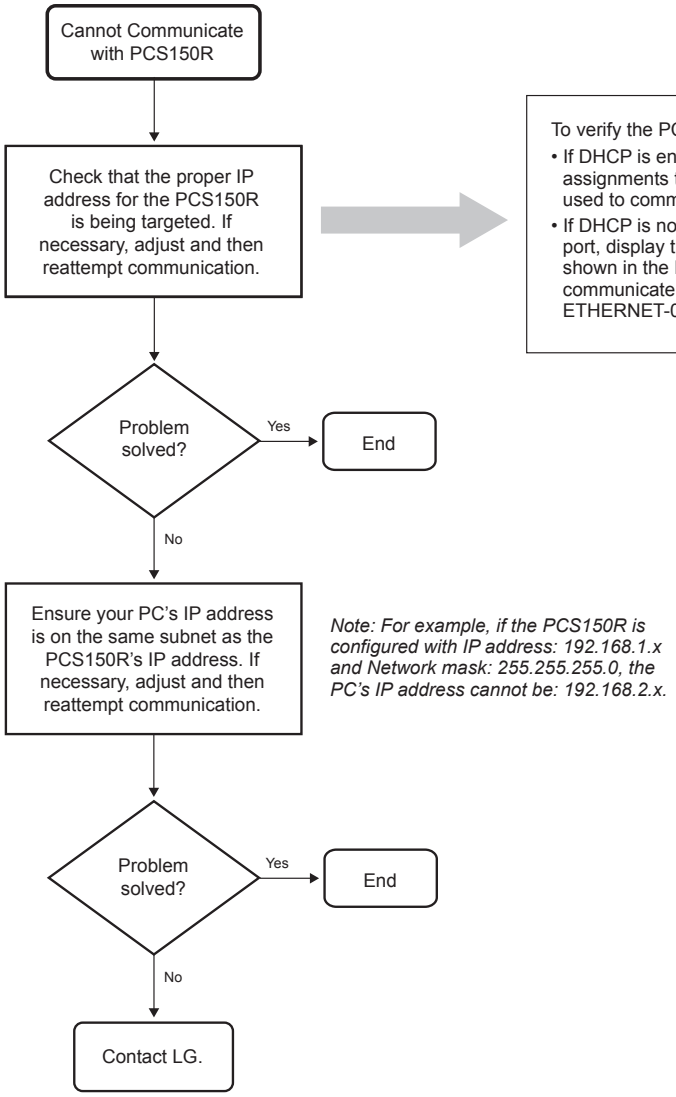
If the network is configured for DHCP but the PCS150R has not been assigned an IP address, i.e., the Eth0 IP field in the PCS150R System Information display is blank:

1. Check the ETHERNET-0 connector on the rear panel of the PCS150R. Make sure the cable connection is tight and secure.
2. Observe the green LED on the ETHERNET-0. Once the PCS150R is connected to the network, the LED will be lit continuously.
3. Contact the network administrator to verify the network status and check that the DHCP server is working properly.

Troubleshooting (Cont.)

PCS150R Communication

If you are unable to establish remote communication with the PCS150R, refer to the following flow chart.


Cannot Communicate with PCS150R
Check that the proper IP address for the PCS150R is being targeted. If necessary, adjust and then reattempt communication.
To verify the PCS150R IP address:
• If DHCP is enabled, check the router for DHCP IP address assignments to determine whether the proper IP address is being used to communicate with the PCS150R.
• If DHCP is not enabled, connect a PC to the PCS150R RS-232 port, display the System Information, and ensure the IP address shown in the ETHERNET-0 field is the IP address being used to communicate with the PCS150R. If necessary, update the ETHERNET-0 configuration as described in this document.
Problem solved?
Yes
End
No
Ensure your PC's IP address is on the same subnet as the PCS150R's IP address. If necessary, adjust and then reattempt communication.
Note: For example, if the PCS150R is configured with IP address: 192.168.1.x and Network mask: 255.255.255.0, the PC's IP address cannot be: 192.168.2.x.
Problem solved?
Yes
End
No
Contact LG.

Specifications

Dimensions

Height:	1.692 inches (42.977 mm)
Width:	19.0 inches (482.6 mm) (for EIA standard 19-inch rack mount)
Depth:	8.5 inches (215.9 mm)
Weight:	3.45 pounds (1.56 kgrms) rack-only weight

Environmental Storage Conditions

Temperature:	-20° to 70° Celsius
	-4° to 158° Fahrenheit
Humidity:	95% non-condensing

Environmental Operating Conditions

Temperature (Tma):	0° to 40° Celsius
	32° to 104° Fahrenheit
Humidity:	95% non-condensing

Electrical

RF Out Connector:	75 Ohm, Type 'F'
Frequency:	VHF/UHF 54–864 MHz
Active Output Level at RF Out jack:	-6 dBm (+42 dBmV) Min., -2 dBm (+46 dBmV) Typ.
Frequency Accuracy:	±5 ppm
Impedance at ASI Out jack:	75 Ohms
Level at ASI Out jack:	800 mv
DC Input:	+12V DC @ 4.0 Amps
Ethernet Connectors (2):	10/100/1000BaseT
USB Ports (2):	USB 2.0

Modulation Specifications

Standard:	ITU-T J.83 Annex B (QAM-B)	
Constellations:	256-QAM	
Symbol Rate:	256-QAM	5.360537 MBaud
Interleaving:	Fixed I = 128, J = 1	

Standard:	DVB-C	
Constellations:	64-QAM, 256-QAM	
Symbol Rate:	64-QAM	6.9 MBaud
	64-QAM	6.111 MBaud
	256-QAM	6.9 MBaud
	256-QAM	6.111 MBaud

Note: Design and specifications subject to change without prior notice.

Document Revision History / Notes

Document Revision History

Date	Description
May 2011	Revision A: New document
June 2013	Revision B: Configuration and specifications updates

Product documentation is available online at: **www.LGsolutions.com**.

Notes

Open Source Software Notice

The following GPL executables and LGPL libraries used in this product are subject to the GPL Version 2.0/LGPL Version 2.1 License Agreements:
GPL EXECUTABLES: Linux kernel 2.6.33, LTIB 10.1.1, bash-2.05b, busybox-1.1.3, e2fsprogs-1.34, ethtool-3, gawk-3.1.3, lrzsz_0.12.21, lzo-2.03, mtd-utils-1.2.0, net-tools-1.60, ntpclient_2003_194, openvpn-2.1.1, pciutils-2.1.11, ppp-2.4.1, procps-3.1.11, screen-4.0.2-1, skell-1.13, time-1.7
LGPL LIBRARIES: eglibc 2.8, libelf-0.8.5, termcap-2.0.8

To obtain the source code under GPL, LGPL, MPL and other open source licenses that are contained in this product, please visit http://opensource.lge.com. In addition to the source code, all referenced license terms, warranty disclaimers and copyright notices are available for download. LG Electronics will also provide open source code to you on CD-ROM for a charge covering the cost of performing such distribution (such as the cost of media, shipping and handling) upon e-mail request to opensource@lge.com. This offer is valid for three (3) years from the date on which you purchased the product.

You can obtain a copy of the GPL, LGPL licenses from: http://www.gnu.org/licenses/old-licenses/gpl-2.0.html and http://www.gnu.org/licenses/oldlicenses/lgpl-2.1.html.

This product includes:

- OpenSSH-4.3p2:
  Copyright © 1994, 1995 Tatu Ylonen, Espoo, Finland
  Copyright © 1998 CORE SDI S.A., Buenos Aires, Argentina
  Copyright © 1995, 1996 by David Mazieres
  Copyright © 1980, 1983, 1987, 1988, 1990, 1992, 1993, 1995 The Regents of the University of California
  Copyright © 1999, 2000, 2001, 2002, 2003, 2004 Markus Friedl
  Copyright © 1995, 1996, 1998, 1999 Theo de Raadt
  Copyright © 1999, 2000, 2001, 2002 Niels Provos
  Copyright © 1999 Dug Song
  Copyright © 1999 Aaron Campbell
  Copyright © 1999, 2000, 2001, 2002, 2003, 2004, 2005 Damien Miller
  Copyright © 2001 Kevin Steves
  Copyright © 2002 Daniel Kouril
  Copyright © 2003 Wesley Griffin
  Copyright © 2001 Per Allansson
  Copyright © 2002, 2003 Nils Nordman
  Copyright © 2001-2003 Simon Wilkinson
  Copyright © 2000, 2001 2003 Ben Lindstrom
  Copyright © 2002, 2005 Tim Rice
  Copyright © 2000 Andre Lucas
  Copyright © 2002 Chris Adams
  Copyright © 2000, 2001 Corinna Vinschen
  Copyright © 2002 Cray Inc. (Wendy Palm)
  Copyright © 2000 Denis Parker
  Copyright © 2001 Gert Doering
  Copyright © 2001, 2003 Jakob Schlyter
  Copyright © 1996 Jason Downs
  Copyright © 2002 Juha Yrjölä
  Copyright © 2000 Michael Stone
  Copyright © 2002 Networks Associates Technology, Inc.
  Copyright © 1997, 1998, 2000-2002, 2004 Todd C. Miller
  Copyright © 2003, 2004, 2005 Darren Tucker
  Copyright © 1988-2002 Sun Microsystems, Inc.
  Copyright © 2005 The SCO Group
  Copyright © 2004 The OpenBSD Project
  Copyright © 2005 Anil Madhavapeddy
  Copyright © 1994 Phil Karn
  Copyright © 1996-1998, 2003 William Allen Simpson
  Copyright © 2003 Peter Stuge
  Copyright © 2005 Reyk Floeter
  Copyright © 1991 Massachusetts Institute of Technology
  Copyright © 2004 Ted Unangst and Todd Miller
  Copyright © 1999 WIDE Project
  Copyright © 1996 Internet Software Consortium
  Portions Copyright © 1999-2001 Internet Software Consortium
  Portions Copyright © 1993 Digital Entertainment Corporation
  Portions Copyright © 1995 International Business Machines, Inc.
- OpenSSL-1.0.0:
  Copyright © 1998-2008 The OpenSSL Project
  Copyright © 1995-1998 Eric Young

All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this open source software and associated documentation files (the “Software”), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

SUBJECT TO THE TERMS OF THE GPL VERSION 2.0/LGPL VERSION 2.1 LICENSE AGREEMENTS, THE SOFTWARE IS PROVIDED “AS IS”, WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS, COPYRIGHT HOLDERS, OR LG ELECTRONICS (THE “LICENSOR”) BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE, EVEN IF LICENSOR HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. LICENSEE ASSUMES THE COST OF ALL NECESSARY SERVICING, REPAIR, OR CORRECTION.

LG PCS150R Pro:Centric Server Warranty

Broadcast Products Welcome to the LG family! We believe that you will be pleased with your new PCS150R Pro:Centric Server. Please read this warranty carefully, it is a "LIMITED WARRANTY" as defined under Federal Law. This warranty gives you specific legal rights, and you may also have other rights that vary from state-to-state within the U.S.A.

LG's RESPONSIBILITY

Warranty Term One year parts and labor from date of purchase or delivery date.

Parts New or remanufactured replacements for factory-defective parts may be used. Such replacement parts are warranted for the remaining portion of the original warranty period.

Warranty Service Warranty service is provided at LG. Customer pays for shipping charges to LG; LG pays for return shipping charges to return PCS150R Pro:Centric Server to customer. Call **1-888-865-3026** for further information.

Not Covered This warranty covers manufacturing defects and does not cover installation, adjustment of customer controls, installation or repair of antenna systems, cable converters or cable company-supplied equipment; it also does not cover damage due to misuse, abuse, negligence, acts of God or other causes beyond the control of LG. Any alteration of the product after manufacture voids this warranty in its entirety.

THIS WARRANTY IS IN LIEU OF ANY OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND LG SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INDIRECT, OR INCIDENTAL DAMAGES OF ANY KIND, INCLUDING LOST REVENUES OR PROFITS IN CONNECTION WITH THIS PRODUCT. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS OR THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU.

OWNER'S RESPONSIBILITY

Effective Warranty Date Warranty begins on the date of delivery of the PCS150R Pro:Centric Server.
For your convenience, keep the dealer's dated bill of sale or delivery ticket as evidence of the purchase date.

Installation Guide Read the Installation & Setup Guide carefully so that you will understand the operation of the PCS150R Pro:Centric Server and how to adjust the settings.

Warranty Service **For warranty service information,** call **1-888-865-3026.** Parts and service labor that are LG's responsibility (see above) will be provided without charge. Other service is at the owner's expense. If you have any problem in obtaining satisfactory warranty service, call **1-888-865-3026.**
You must provide the model number, serial number and date of purchase or date of original installation.

For Customer Support/Service, please call:

1-888-865-3026

www.LGsolutions.com

Pro:Centric is a registered trademark of LG Electronics U.S.A., Inc. All other trademarks or registered trademarks are the property of their respective owners.

© Copyright 2013 LG Electronics U.S.A., Inc.

206-4157
Revision B